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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/501,885

07/20/2004

Sou Kuroiwa

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38834

7590

08/21/2008

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EXAMINER

WEINSTEIN, LEONARD J

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

08/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/501,885	Applicant(s) KUROIWA ET AL.	
	Examiner LEONARD J. WEINSTEIN	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 28, 2008 has been entered.

2. The examiner acknowledges the amendments to claims 1 and 2.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiwara et al. US 5,369,972 in view of Kajiwara US 5,256,033 as evidenced by Kajiwara US 5,318,403. Kajiwara '972 teaches with the prior art of figure that it was

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known in the art to provide multistage pump having a plurality of intermediate casings 1 formed by press-forming a steel plate including: **[claims 1 and 2]** each of said intermediate casings 1 has a cylindrical side portion 4b, a stage flat portion, section of element 2 above the flat transition separating bottom leg of element 2 that is in contact with element 10, with which an axial end face 3a of an adjacent intermediate casing (as shown on the left side of element 1 in figure 6) is held in contact, a stage side portion, defined by the transition portion between the top and bottom sections of element 2, extending axially from said stage flat portion, top section of 2, and a bottom portion, leg or bottom section of 2, extending radially inward from said stage side portion, transition in 2, wherein said cylindrical side portion 4b, said stage flat portion, top section of element 2, said stage side portion, transition in 2, and said bottom portion, bottom section of 2, are integrally formed from said steel plate by said press-forming, wherein a relief plate 7 having an outer circumferential end face which is held in contact with an inner surface of a cylindrical side portion 3b of said adjacent intermediate casing, as shown in figure 6 and disclosed (col. 1 ll. 38-46) is attached to said bottom portion, bottom section of 2, of said intermediate casing 1, wherein said relief plate 7, said stage side portion, transition in 2, said stage flat portion, top section of element 2, and said inner surface of said cylindrical side portion 3b of said adjacent intermediate casing 1 form a space in which an O-ring is capable of being fitted, wherein said bottom portion, bottom section of 2, functions as a wall separating said intermediate casings 1 (left and middle casings shown in figure 6).

The prior art disclosed by Kajiware '972 fails to teach the following limitations that are taught by Kajiware '033 for a multistage pump including: **[claims 1 and 2]** an o-ring actually fitted in a space 31 formed by a stage side portion 27, a stage flat portion 26 and said inner surface of a cylindrical side portion 23 of said adjacent intermediate casing 21; **[claim 2]** a return vane 32 interposed between a side plate 34 and a relief plate 33 formed integrally with said relief plate 33; **[claims 4 and 5]** a relief plate 33 is attached to a bottom portion 24 at a position near its outermost portion, designated with numeral 35 in figure 1, so as to form a gap between a radially inner portion, as defined by the bottom (innermost face) of element 33 even with the bottom (innermost face) of element 30 and the bottom (innermost face) of element 29 in abutment with element 29, of said relief plate 33 and said bottom portion 24 of said intermediate casing 21 according to an amount of deformation of said bottom portion 24 due to a differential pressure between stages 20 (col. 3 ll. 10-19).

Kajiware '403 teaches a feature, shown in figures 1-2, that is common to Kajiware '033 and is used here as evidence that modification to the prior art disclosed in Kajiware '972 (fig. 6) would have been obvious. Kajiware '403 discloses that forming a recess and that placing an o-ring within the recess between stages creates a seal between stages and increases the applicability of the casing for use in multistage pumps. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transition portion between a bottom and top section of a bottom wall of an interstage casing as taught by the prior art disclosed by Kajiware '972, to have an o-ring fitted into a space between casings, as taught by Kajiware '033

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and Kajiwara '403, in order to provide a seal between stages so the casing could be used for a wide range of high pressure multistage pumps.

Further Kajiwara '033 teaches that providing a return blade 32 attached to a relief plate 33 that is attached to a bottom portion of an interstage casing 20 where a gap exists between the innermost circumferential faces of each, offsets the deformability of a bottom wall. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify an interstage casing as taught by the prior art disclosed in Kajiwara '972, to have an o-ring fitted between a relief plate and a top section of a bottom wall provided between stages as taught by Kajiwara '033 and evidenced by Kajiwara '403, and further modified to have a return blade attached to a relief plate, as taught by Kajiwara, in order to offset the degree to which a bottom wall provided between stages is deformed during operation (col. 3 ll. 10-19).

6. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiwara et al. US 5,369,972 in view of Kajiwara US 5,256,033 as evidenced by Kajiwara US 5,318,403. A combination of the references with the prior art disclosed by Kajiwara '972 as discussed, teaches the limitations for a multistage pump except for the limitations that are taught by disclosure of prior art in figure 3 of Kajiwara '033. The prior teaches multistage pump provided with a return vane 7 having a height at an outer circumferential side that is larger than a height of an inner circumferential side. Kajiwara '033 discloses that this design reduces deformation of the bottom wall of an interstage case while avoiding an increase in thickness. It would have been obvious to combine a relief plate having an outer circumference with a larger height than a height of inner circumference with a relief a

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partition able to deform within a given limit (δ) in order to provide a interstage casing having a thinner bottom wall (Kajiwara '033 – col. 2 ll. 36-46).

Response to Arguments

7. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD J. WEINSTEIN whose telephone number is (571)272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

/Leonard J Weinstein/
Examiner, Art Unit 3746